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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,797	08/28/2003	Jung Ah Lee	29250-000937 / US	5609

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HARNESS, DICKEY & PIERCE, P.L.C.  
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EXAMINER
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CHU, WUTCHUNG

ART UNIT	PAPER NUMBER
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2619

MAIL DATE	DELIVERY MODE
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08/22/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/649,797	<b>Applicant(s)</b> LEE ET AL.	
	<b>Examiner</b> WUTCHUNG CHU	<b>Art Unit</b> 2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-15 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/28/2003 and 12/23/2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This communication is in response to application's amendment filed on 5/7/2008.  
Claims 1-15 are pending.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**Regarding claims 1 and 9**, the newly added limitation "the determining of the detection metric being accomplished without the use of an actual hardware reception apparatus;" is not support by the spec. claims 2-8 and 10-15 are also rejection as they are dependent claims of claims 1 and 9.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by lochi (US2003/0058972).

**Regarding claim 1**, lochi discloses apparatus and method for preamble reception (**see paragraphs 11-13**) comprising:

- determining a detection metric (**see paragraph 11 probability of preamble detection**) for one or more given wireless channel coefficients representing a plurality of wireless channel realizations (**see paragraph 11**), the determining of the detection metric being accomplished without the use of an actual hardware reception apparatus (see figure 2 box 201 an individual calculation section for determining detection correlation value and which does not involve a reception apparatus);
- selecting a conditional detection probability (**see paragraph 13 correlation value**) based on the determined detection metric (**see paragraph 27 and figure 204 threshold determination section**); and
- calculating a link level performance result (**see paragraph 11 and 29 preamble detection**) based on the selected conditional detection probability (**see paragraph 13 correlation value**).

**Regarding claim 2**, lochi teaches the

- wireless channel is an access channel (**see paragraph 57 mobile station and channel and paragraph 39 random access**), and

- calculating a link level performance result (**see paragraph 11 and 29 preamble detection**) includes calculating a detection indicator value (**see paragraph 57 threshold**) that represents a detection success or a detection failure of the access channel (**see paragraph 11**).

**Regarding claim 3**, lochi teaches the conditional detection probability (**see paragraph 11 and 29 preamble detection**) is selected without substantial link-level processing during a system simulation of the communication system (**see paragraph 61 and 62**).

**Regarding claim 4**, lochi teaches selecting includes accessing a look-up table (**see paragraph 54 among correlation values**) to select a conditional detection probability corresponding to the determined detection metric and a given threshold value (**see paragraph 54**).

**Regarding claim 5**, lochi teaches the given threshold value is calculated in advance as a function of a probability of an erroneous detection (**see paragraph 11**) when a signal to be received over a given wireless channel realization is not present (**see paragraph 78**).

**Regarding claim 8**, lochi teaches

- the wireless channel is an access channel (**see paragraph 39 random access and paragraph 57 mobile station and channel**) , and
- the detection metric is an instantaneous detection metric (**see paragraph 11 and 29 preamble detection**) of the access channel that is a function of one or more of transmit power (**see paragraph 144**), a wireless channel coefficient of the access channel (**see paragraph 39**), a spatial processing result from subjecting the access channel to spatial processing (**see paragraph 129**), and a temporal processing result from subjecting the access channel to temporal processing.

***Claim Rejections - 35 USC § 103***

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Herrmann (US7161952).

**Regarding claim 6**, lochi teaches calculating the detection indicator value **(see lochi paragraph 57)** and disclose all the subject matter of the claimed invention with the exception of:

- comparing the selected conditional detection probability to a randomly-generated number, and
- outputting the detection indicator value if the selected conditional detection probability equals or exceeds the randomly-generated number.

Herrmann from the same or similar fields of endeavor teaches the use of if the random number exceeds the persistency probability the terminal cannot send the preamble **(see Herrmann col. 5 lines 5-40)**. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the comparing and resulting with a random number as taught by Herrmann in the apparatus for preamble reception of lochi in order to enhance system efficiency.

9. Claims 7, 9-10 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over lochi in view of Hamada et al., hereinafter Hamada, (US6873607).

**Regarding claim 7**, lochi teaches the determining, accessing and calculating are repeated for a plurality of wireless access channel realizations (**see paragraphs 11-13**), the method further comprising:

- wherein calculating a link level performance result (**see paragraph 11 and 29 preamble detection**) includes determining an unconditional detection probability for all wireless access (**see paragraph 27 non-coherent detection correlation value calculation section**)

and disclose all the subject matter of the claimed invention with the exception of:

- averaging the detection indicator value over the plurality of wireless access channel realizations;
- channel realizations based on the average detection indicator value.

Hamada from the same or similar fields of endeavor teaches the use of calculate an average value of the interference detection rates of the time slots assigned to all R channels every frame (**see Hamada col. 7 lines 22-39**). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the average value of the interference detection rate as taught by Hamada in the apparatus for preamble reception of lochi in order to enhance system efficiency.

**Regarding claim 9**, lochi teaches apparatus for preamble reception (**see paragraph 11**) comprising:



- determining, for each given RACH preamble (**see paragraph 39 random access**) of a plurality of wireless channel realizations (**see paragraph 11 probability of preamble detection**), a conditional detection probability (**see paragraph 13 correlation value**), the conditional detection probability determined without link-level processing requiring repeated system simulations of the communication system (**see paragraph 61 and 62**) and without requiring system simulations using an actual hardware reception apparatus (**see figure 2 box 201 an individual calculation section for determining detection correlation value and which does not involve a reception apparatus**) the determining of the detection metric being accomplished without the use of an actual hardware reception apparatus; and
- calculating an unconditional detection probability (**see paragraph 42 non-coherent detection correlation value calculation section and figure 2 box 202**) for determining RACH (**see paragraph 39 random access**) preamble detection performance (**see paragraph 65**)

and disclose all the subject matter of the claimed invention with the exception of:

- as an average detection probability over the plurality of wireless channel realizations.

Hamada from the same or similar fields of endeavor teaches the use of calculate an average value of the interference detection rates of the time slots assigned to all R channels every frame (**see Hamada col. 7 lines 22-39**). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the average value of the interference detection rate as taught by Hamada in the apparatus for preamble reception of lochi in order to enhance system efficiency.

**Regarding claim 10**, lochi teaches calculating an unconditional detection (**see paragraph 42 non-coherent detection correlation value calculation value**) probability includes calculating a detection indicator value that represents a detection success or a detection failure (**see paragraphs 57 which a signal indicating tha the preamble corresponding to the signature number from threshold determining section has been received, and also see paragraphs 11 and 78**) of a RACH preamble (**see paragraph 39 random access**).

**Regarding claim 13**, lochi teaches determining a conditional detection probability includes:

- determining a detection metric (**see paragraph 11 probability of preamble detection**) for a given wireless channel realization (**see paragraph 11**); and

- accessing a look-up table (**see paragraph 54 among the correlation values**) to select a conditional detection probability (**see figure 2 box 201 coherent detection correlation value calculation section and paragraph 42**) corresponding to the determined detection metric (**see paragraph 11 probability of preamble detection**).

Regarding claim 14, lochi teaches the detection metric is an instantaneous detection metric (**see paragraph 11 and 29 preamble detection**) of a given wireless channel (**see paragraph 39 random access and paragraph 57 mobile station and channel**) that is a function of one or more of transmit power (**see paragraph 144**), a wireless channel coefficient (**see paragraph 39**) of the given RACH preamble (**see paragraph 39**), a spatial processing result from subjecting the RACH preamble to spatial processing(**see paragraph 129**), and a temporal processing result from subjecting the RACH preamble to temporal processing.

Regarding claim 15, lochi teaches the given threshold (**see paragraph 27 threshold**) is calculated in advance as a function of a probability of an erroneous detection (**see paragraphs 11 and 63**) of the given RACH preamble (**see paragraph 39 random access**).

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over lochi and Hamada as applied to claims 9 and 10 above, and further in view of Herrmann.

**Regarding claim 11**, lochi teaches calculating the detection indicator value **(see lochi paragraph 57)** and disclose all the subject matter of the claimed invention with the exception of:

- comparing the selected conditional detection probability to a randomly-generated number, and
- outputting the detection indicator value if the selected conditional detection probability equals or exceeds the randomly-generated number.

Herrmann from the same or similar fields of endeavor teaches the use of if the random number exceeds the persistency probability the terminal cannot send the preamble **(see Herrmann col. 5 lines 5-40)**. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the comparing and resulting with a random number as taught by Herrmann in the apparatus for preamble reception of lochi in order to enhance system efficiency.

***Allowable Subject Matter***

11. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

12. Applicant's arguments, see applicant remarks on page 10, filed 5/7/2008, with respect to 112 2<sup>nd</sup> rejection on claim 3 have been fully considered and are persuasive. The 112 2<sup>nd</sup> of claim 3 has been withdrawn.

13. Applicant's arguments filed 5/7/2008 have been fully considered but they are not persuasive.

**With regard to applicant's remark for claims 1 and 9 (page 11)**, applicant submits that the lochi does not teach "determining a detection metric for one or more given wireless channel coefficients representing a plurality of wireless channel realization, the determining of the detection metric being accomplished without the use of an actual hardware reception apparatus". However, the newly added limitation is not supported by the spec and a 112 1<sup>st</sup> written description rejection is given for that reason. In addition, lochu in figure 2 box 201 teaches an individual calculation section for determining detection correlation value and which does not involve a reception apparatus and rejection respectfully remains.

***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Garner et al. (US6112085); Baldwin et al. (US5204976); Jonsson (US6487420); Kitade et al. (US2005/0174968)

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WUTCHUNG CHU whose telephone number is (571)270-1411. The examiner can normally be reached on Monday - Friday 1000 - 1500EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571 272 7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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